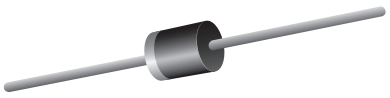
# P600A, P600B, P600D, P600G, P600J, P600K, P600M

## General Purpose Plastic Rectifier



P600

### FEATURES

- Low forward voltage drop
- Low leakage current
- High forward current capability
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes application.

### MECHANICAL DATA

**Case:** P600, void-free molded epoxy body
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes cathode end

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 6.0 A |
| $V_{RRM}$ | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$ | 400 A |
| $V_F$ | 0.9 V, 1.0 V |
| $I_R$ | 5.0 µA |
| $T_J$ max. | 150 °C |
| Package | P600 |
| Diode variations | Single die |

**MAXIMUM RATINGS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | | SYMBOL | P600A | P600B | P600D | P600G | P600J | P600K | P600M | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|
| Max. repetitive peak reverse voltage | | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Max. RMS voltage | | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Max. DC blocking voltage | | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Max. average forward rectified current at | $T_A$ = 60 °C, 0.375" (9.5 mm) lead length (fig. 1) | $I_{F(AV)}$ | 6.0 | | | | | | | A |
| | $T_L$ = 60 °C, 0.125" (3.18 mm) lead length (fig. 2) | | 22 | | | | | | | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | | $I_{FSM}$ | 400 | | | | | | | A |
| Operating junction and storage temperature range | | $T_J$, $T_{STG}$ | - 50 to + 150 | | | | | | | °C |

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | TEST CONDITIONS | | SYMBOL | P600A | P600B | P600D | P600G | P600J | P600K | P600M | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Max. instantaneous forward voltage | 6.0 A | | $V_F$ | 0.90 | | | | | | 1.0 | V |
| | 100 A | | | 1.30 | | | | | | 1.4 | |
| Max. DC reverse current at rated DC blocking voltage | | $T_A$ = 25 °C | $I_R$ | 5.0 | | | | | | | µA |
| | | $T_A$ =100 °C | | 1.0 | | | | | | | mA |
| Typical reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | | $t_{rr}$ | 2.5 | | | | | | | µs |
| Typical junction capacitance | 4.0 V, 1 MHz | | $C_J$ | 150 | | | | | | | pF |


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| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PARAMETER | SYMBOL | P600A | P600B | P600D | P600G | P600J | P600K | P600M | UNIT |
| Typical thermal resistance | $R\theta_{JA}$ (1) | 20 | | | | | | | °C/W |
| | $R\theta_{JL}$ (1) | 4.0 | | | | | | | |

**Note**

(1) Thermal resistance from junction to ambient and from junction to lead at 0.375" (9.5 mm) lead length, PCB mounted with 1.1" x 1.1" (30 mm x 30 mm) copper pads

| ORDERING INFORMATION (Example) | | | | |
|---|---|---|---|---|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| P600J-E3/54 | 2.1 | 54 | 800 | 13" diameter paper tape and reel |
| P600J-E3/73 | 2.1 | 73 | 300 | Ammo pack packaging |

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

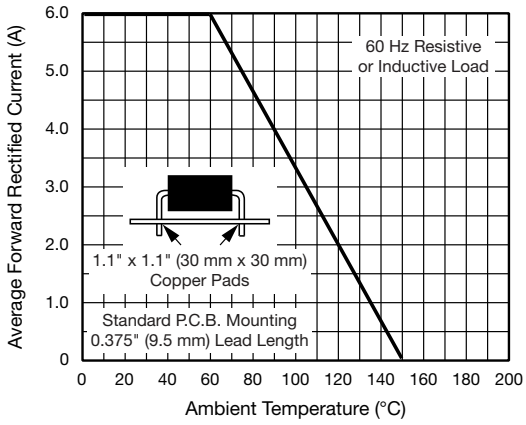



Fig. 1 - Max. Forward Current Derating Curve

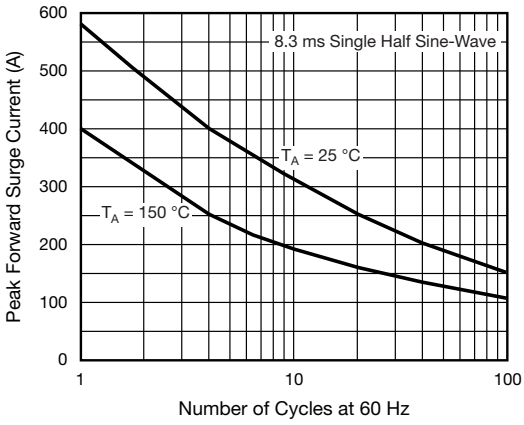



Fig. 3 - Typical Instantaneous Forward Characteristics

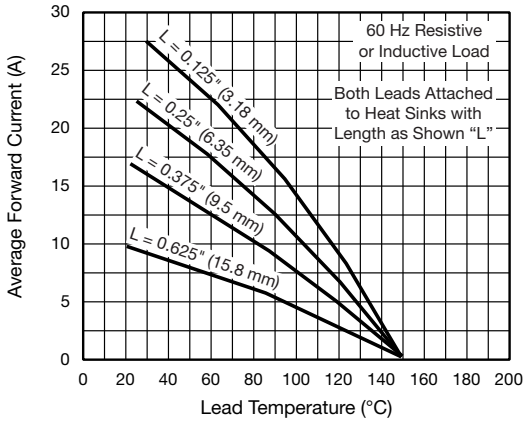



Fig. 2 - Max. Non-repetitive Forward Surge Current

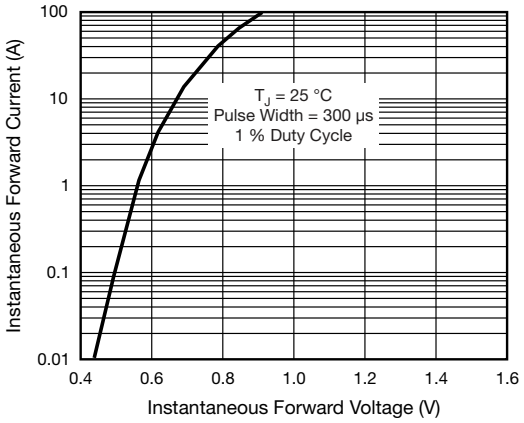



Fig. 4 - Typical Instantaneous Forward Characteristics


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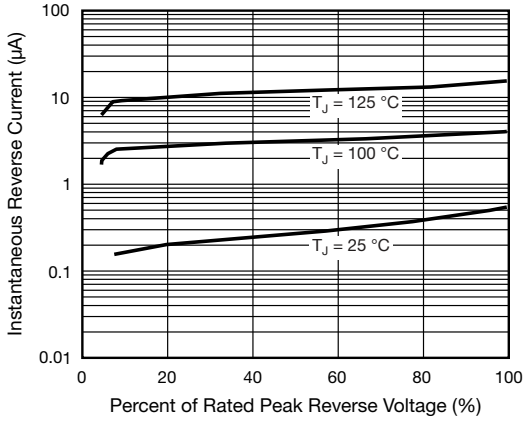



Fig. 5 - Typical Reverse Characteristics

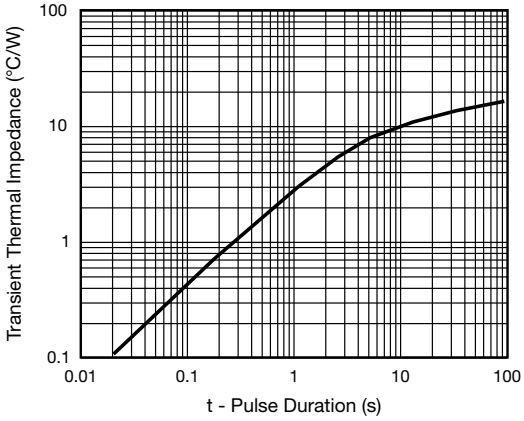
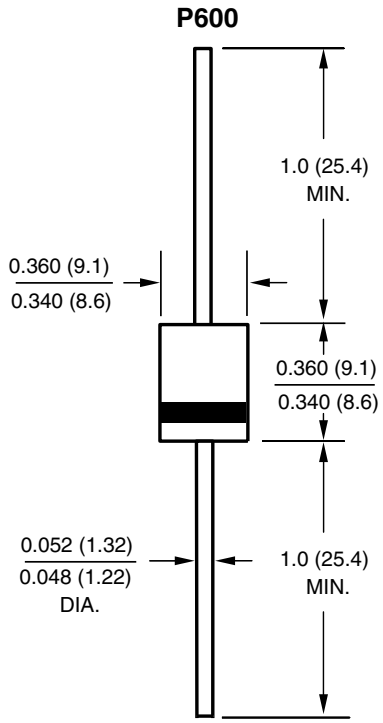



Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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